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October 1977
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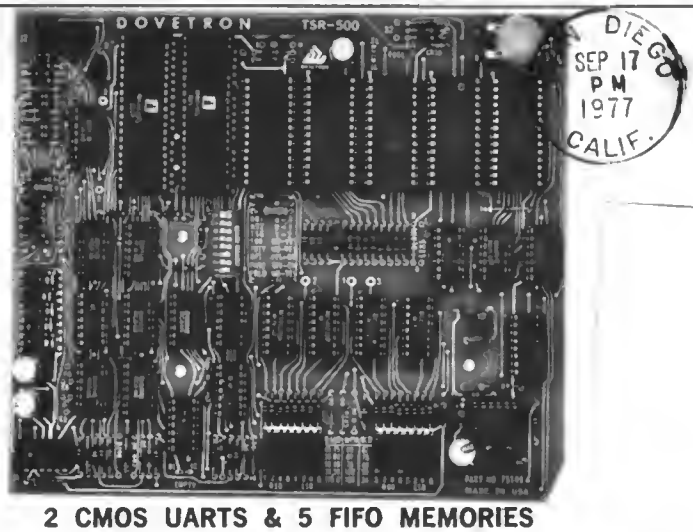

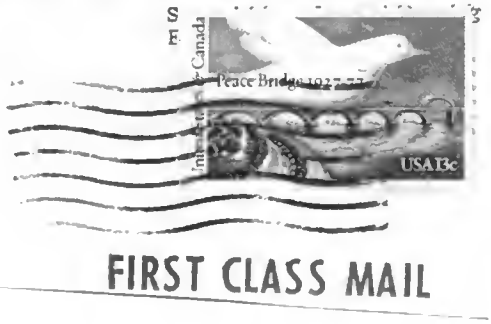

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BACK ISSUES

A duplicate of any back issue may be obtained from R. Wilson, 4011 Clearview Dr., Cedar Falls, IA. 50613. $1.00 pp. Reprints of all UART articles, $2.00 pp.

RTTY JOURNAL

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CONTENTS

2. HITS & MISSES
3. VHF NEWS
4. RTTY DX
6. WIND IT UP, KEEP IT NEAT
7. SELECTIVE CALLING
9. UNIVERSAL TONES
10. AUDIO DIGITAL PROBE
11. MODIFY THE 15 RIBBON REWINDER

COMING IN THE NEXT ISSUE

THE AUTOCOM MAIL

By Neil Petlock K9WRL

For those of you that like to have everything right on frequency the Bureau of Standards has a very nice packet of information. This will be sent to you free, just send a request to National Bureau of Standards, Boulder, Colorado 80302. You may wish to specify publication # 432 and Technical Note 695.

Within our own organization here in Southern California we have a rather unique attachment that operates thru our repeater, it will tell you the time and date all you have to do is send TIME LTRS BLANK and it will give you the time and date. This unit was constructed by Joe Young W6RLL. Joe is now working on another addition to the repeater that will give you the the operating habits of the users. Won't be long before you will be able to call up the repeater and carry on a conversation with it.

We had a very enjoyable visit with Brian Morgan VK7RR from Tasmania during his stay in San Diego. Brian had his first taste of good old American chili at an out door chili bash he was also able to meet some of the American politicians since this was a political gathering sponsored by club that my wife is president of.

The Journal now has a complete set of Journals from day one thanks to Red Wilson WBØESF. In the future Red will be handling all requests for back issues, current year (77) issues will be 50¢ each priour issues will remain at $1.00 each. These are beautiful reproductions printed on both sides real top quality work.

As for us we are slowly getting things organized here at the Journal - office and appreciate all the nice letters. See you again next month.

Silent Key

Edward Kleinschmidt

It is with deep regret we record the passing on of EDWARD KLEINSCHMIDT. who revolutionized the commication industry with his invention of the high speed teleprinter. He is deeply ingrained in the history of teletype and teleprinters.

Land line teleprinting was actually crudley operated as early as 1849 - between New York and Philadelphia. There were many difficulties mostly mechanical. By 1906 Joy Morton and Charles Krum of Chicago had developed a simpler and more dependable machine. They formed the Morkrum Company but it was not especially succesful until the Associated Press decided to try it out in 1915. However by this time EDWARD KLEINSCHMIDT had developed another teleprinter and formed his own company. In 1925 the two companies merged into the Teletype Corp. (a new corporation). Bell Telephone (A.T.T) bought out that corporation in 1930. Kleinschmidt eventually went into competition with Teletype.

There was no amateur teletype activity until 1946 due to the lack of machines available for Hams. Rtty was developed during WWII and many RTTY'ers got started at that time.

EDWARD KLEINSCHMIDT died at the age of 99 (1876-1977) he was able to see the development of his dreams come true up to the super high speed printers of today.

VHF RTTY NEWS

CHUCK EDWARDS W6MNO

4726 Barbarossa Drive - San Diego, CA 92115

Looks like the bit of chide last issue did a little awakening. We received quite a few comments from our readers. Fortunately, the comments were all complimentary, so far! It makes a feller try a little harder when someone writes in to say that he is appreciated. The compliments are all duly appreciated, but we do need more news. Believe me, it gets a bit dry sitting here at this end trying to think of what you, the readers, would like to see printed.

We received a very friendly note from Fred, W7WWG of the Portland RTTY Society. He said that, as a group, they would like to contact as many repeater builders and operators as they can, both in the U.S.and Canada. Ted says, that they will send a questionaire to each one contacted so that his group can make a survey on what was done to set up any particular repeater. He then plans to consolidate this material and make it available to any new group requiring this experience.The Portland RTTY repeater has been on the air for about nine months and already they are completing a link towards the south and the southwest . The southern groups are beginning to link northwards and it should not be too long before we have a border to border linkage. What a wonderful thing to have happen. It wasn't too long ago that such an accomplishment was only a figment of some hams mind -- and then they thought he was crazy.

Don, W6KCW and I have discussed the many ways and also the many problems to consider a coast to coast link from east to west. Not at all impossible anymore.

Paul, W4RI, says that there is a rapidly growing group of VHF RTTY'ers in the Washington, D.C. area, especially on the AMRAD WR4APC all mode repeater. Keep it up Paul and get the fellows to start up their own RTTY club in Virginia, Maryland and Washington. That would make a notable group in a famous part of the U.S. Paul is President of the Amateur Radio Research and Development Group Corporation (AMRAD) which is a group of technically oriented amateurs having interests in anything concerned with amateur radio. They meet on the first Monday of the month at the Patrick Henry Library in Vienna, Virginia.. Descriptions of some of the materials given at these meetings is to be envied. Perhaps we can invegal Paul into providing the JOURNAL with a paper interesting to all RTTY'ers.

The Southern Counties Amateur Teleprinter Society (SCATS) is holding a raffle. The prize is a model 28KSR completely rebuilt by A.D.M.communications Incorporated of Escondido. California. Tickets are five dollars each and because only one hundred of them will be sold the odds are very good. Some lucky fellow will win a beauty, Hope it will be me!

The club has well over 100 members now and they are active RTTY'ers, on the air using the RTTY repeater owned by the club. There is lots of activity going on every night and also during the day. Several club members monitor the club frequency 146.16Ø/7Ø twenty-four hours a day.Thursday evening has been reserved for the picture buffs. Time out is always offered for any possible traffic in between pictures. A real Ham operation all the way.

RTTY NEWS PRESS

ENGLISH

7.742, 14.626. 14.638 MHz.

SPANISH

14.695, 14.700, MHz. -

RTTY-DX

SKIP PRINSEN WB6CYA

3611 Merrimac, San Diego, Calif. 92117

Greetings to all.....

With the SARTG out of the way and comments coming in from those that participated we are looking forward to the 17th annual W/W RTTY DX'CARTG Decade' Sweepstakes which will be the week-end of 24th October (see Sept. issue for rules).

Some comments from Robert WA9AKT. As usual at the sound of the gun 20 meters was packed with CQ CONTEST, worked all that could hear in two hours then 20 started to fade. 80 meters had no contest operators. Moving to 40 meters was surprised to hear a lot of activity, worked 10 stations including KH6AG and XE1IH. Saturday conditions were fair to poor into Europe.

On Sunday at 720 local 1220 GMT it all started: I had just finished a QSO with VE4BF when I thought I heard a JA calling me, turned the beam north, over the pole, and heard JA4ONZ .. working a W7. Waited and gave the JA a call. No answer, then I heard another weak station calling me.Swung the beam back towards Europe and worked ZS6BLV. After that contact I heard JA4ONZ calling me and worked him and UK2GAX.Europe was still coming in strong and clear. Also heard but did not work: KH6AG, ZS6AAM, another JA, and a 4X4 station. It was all over in 30 minutes. It made the whole contest for me and it was worth waiting thru the first 16 hours for.

WAC all on 20 meters....
#45 James Cox , K4JAF
#46 Robert Meyer , WA9AKT
WAS all on 20 meters..
#9 Jim McAdams, W4YZ (K4GJW)
#10 Gustano Pellegrini, I5WT.
DXCC 130 endorsement
I5WT Gustano Pellegrini, via XXIV, Maggio, 23 Fireye 50129, Italy.

Gustano has worked 135 countries and has 132 confirmed, a very envious feat Congratulations to you.

Bo Lindgren, SMØOS who operated 9k2-EP while in Kuwait has returned to Sweden and reports that no one was interested in RTTY to take over his operation from there. Bo also states that anyone who still needs a card from his operations as YA1OS while in AF-ghanistan can be obtained via SMØDJZ Box 3036, S-19503, Mersta, Sweden. Bo's new address in Sweden is: Bo Lindgren, Teleskolan, Hornsgatan 103, Stockholm, Sweden.

Jeff, 9H1EL in Malta reports that he has a stateside manager. He also noted that he has 2000 cards unanswered thru the bureau. Jeff's manager is: Jack Hawkins, W5CP1, 2204 N. College, , Bethany, OK 73008.

Robert, VE6OJ worked several European stations on the 2th of august some he worked were:OE6,DL9,SM and F6. The time was Ø7ØØMDST.

EA8IY, Fernando has been worked from the west coast several evenings around 23ØØZ. Also the usual VK's, ZL's and JA's has been active from the west coast.

KL7ITC, Kirke is new on RTTY from Anchorage and promises to be quite active.

In early June GM3XMZ, Clive, was extremely active from the Shetland Isles While this does not count as a seperate DXCC country it is of extreme importance to those of you trying for the WAE awards. It does count separate for the series available from the DARC.

With activity from the Republic of Ireland quite rare these days you might look for Jim,EI5C, from Dublin, the gear being located at a military installation is in wide shift and 50 band speed. Jim has no trouble in printing your 170 Hz shift but regrets that he cannot adjust his transmittined signal as the C.O. would take a dim view of tinkering with the Army gear. He is

soon getting his own personal RTTY set-up and will be able to get in line with the rest of the boys.

Some new activity. ZS6ACB, ISØTIU, ISØWWL, PY2BXA, PY2HDZ, VK2BUJ, LA3YU, G5BNV, 6Y5HJ is on 50 bands and in reverse. Also FP8DS, C31CH, TU2GA, VU2GZE, GR7AB, UK3DBG,HK 3DMD, HK3AMV, G4CVY, G4AEI, G3 LWM, G3LTN, G3SGY.

EA8IY's address is: Fernando Molina, Herrero, PO Box 6, Orotaua, Tenerife, Canary Islands.

Another new country showing up was Jim, A9XCC on Bahrain Island in A-RABIA. Jim has an excellent signal on 170 shift 45 band. He has a state-side QSL manager K4CG.. US Coast Guard Radio Station, 7323 Telegraph Road, Alexandra, VA 22310.

QSL cards from Wassim, JY4JW are arriving via the bureau. It was a long wait but when you see the card you may feel it was worth it.

Special thanks go to W3KV, John POS-sehl whose inputs these last few months have made this section of the maga-zine what it is today.

COMMENTS OF CONTESTANTS.....

Even if the number of stations was lower than the one last year and even if the conditions were very bad, I think that the contest has confirmed its .. beauty and its characteristics of mighty and fascinating test. The 18 hours 'off air' are not very good, in fact its difficult to guess the choice that can bring to the victory or to an honorable placement. As the number of stations that participate is limited at a few hundred also I think it would be better that the rules state the 'off air' periods: 'Dura lex sed lex.' Rosario,I8AA.

Found that the contest was not good for DX, the conditions were very bad, although I feel a few more contacts would(15mtrs.) have been made if the boys had used the band, it was open several times during the contest for short haul contacts, but nobody bother-ed to make any calls... Same applies to 40 meters. Although I made 212 QSO's I spent many long periods of no contacts, think the contest was not advertised too well so many boys did not know that there was a contest. However, I enjoyed the contest thanks for organizing it and see you next year. Bern, CT1EQ.

I am sorry that I could not enter for the 30 hours permitted for the contest, but I had to leave Malta. Conditions during the contest were average on 20 M. with no long path DX to Australia and Japan in the early morning, but short path open to both areas at about 1100GMT. On 15 m. no activity onRTTY but many DX stations on SSB and CW coming through 80 and 40m. very good. Thanks for first AV contest, it was very enjoyable, and hope to see you next year from another location.Jeff, 9H1EL.

I enjoyed the test very much and look forward to participate in next year. Gordon, SM6GVA.

12th AV DX contest is good, the con-ditions are worse and the participation of the stations is worst. Ceck,OK2 5350

Thank you for an interesting AV con-test. Conditions were quite good but few stations in the Far East and in Africa could be heard here in Scan-dinavia. Activity in the USA was good however, the low activity on 40m. was a dissappointment. Also a good many amateurs did not know about the test. The test also came uncomfortably close to Christmas..I hope to meet you in the AV test of 1977. Bo, SM6ASD.

As you no doubt know, many operators did not know about the Volta this year. I suggest advance notice to the RTTY JOURNAL in years to follow. The first weekend in December would also be better. Carl, K6WZ.

It would have been a good test if there would have been more stations inform-ed on its occurence. Not clear the rules about QSO's with stations of the same country. A suggestion is to do two scores for on and under 100 watts. But thank you for the nice test. Lucio, 12OLW.

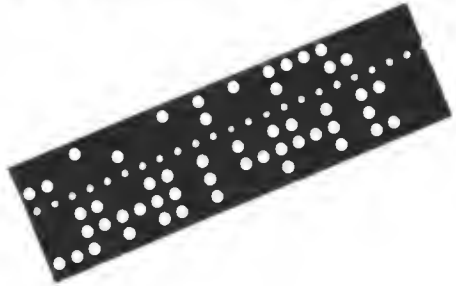
Thanks for the fine contest, was the first contest with my new RTTY equip-ment and it was going very nice. Had no noise in the room here hi. All the best and see you. Nic, PAØSCH.

It seems that the participation was quite a lot, but it would have more if there was a bit of publicity.. Wishing I could participate at the next time with more luck. Claudio, IC8FHC.

The 13th Volta RTTY DX contest will be a special edition to commorate the 150th anniversary of the death of dis-

continued page 19 col. 2

Wind it up and keep it neat--



Here is a simple and efficient way to hand wind your picture tapes. It was taught to me by a retired employee of Western Union. It sure is faster and easier than winding a tape on a roll.

STEP -1
Hold the beginning of the tape between fingers 2 and 3.

STEP-2
Bring the tape around between fingers 2 and 1 and begin the loop around the thumb. Remember not to twist the tape during winding.

STEP-3
Bring the tape around the thumb without twisting it, going over the tape in the palm of your hand and between fingers 3 and 4.

STEP-4
Continue with the tape around behind fingers 2 and 3 and then behind the thumb again. Continue wrapping this figure 8 fashion.

STEP 5
Remove the tape and secure the center with a rubber band. Write with an indeleble pen on the beginning leader...

De Gary WAØNDN

SELECTIVE CALLING

Chuck Edwards, W6MNO
4726 Barbarossa Drive
San Diego, CA 92115

Technical discussion this month will briefly encompass the RTTY SEL CAL and WRU for the model 28, or any other teletype writer. The SEL CAL is a mechanical or electronic device, which when coded properly, will turn on your machine and only your machine. The code most used today is the amateurs' call. Actually, however, the code uses only the letters and the last two or three characters. It is possible also, to include the 'ltrs QST' code to have an 'all-turn-on', for club news or what ever. For example, if someone wanted to leave me a message, they would have to send the code to start up my machine -- which is: LTRSMNO (LTRS means to press the LTRS key then MNO. That will alert my machine to automatically turn on and await any message. Now, if the code sender wants to make sure that my machine is really turned on he can send the code LTRSMNOLTRSBLANK (a total of six key punches) that in turn, will activate my WRU which is coded into the stunt box of my model 28. This WRU, when activated, will turn on my transmitter and print out, via the TD, a preprogrammed information previously punched out and formed into a loop to continously print my message. At the same time that the transmitter is turned on the TD, of course, also starts up and prints my message. . In my case it will look like this;
This is W6MNO in San Diego on SEL CAL.. Please leave your message -- WRU PLEASE NNNN.

The four NNNN's are included on the peforated tape to shut down the transmitter and the TD and await the message the code sender wants to leave for me. If he fails to send his message then the autostart in the terminal unit takes over the operation and shuts off at 35 seconds or whatever time delay is designated in your autostart. This, of course, still leaves your receiver and terminal units on awaiting another coded call.

A very neat mechanical method can be employed to do all of the above if desired. By using a model 28 stunt box and a model 28 typing carriage (basket) and a drive motor. The means to code this stunt box and arrange a proper switch and relay hook-up is actually quite simple. A complete description will be provided in the new issue of the 'Beginners Hand Book' or in a special SEL CAL BOOKLET. This is a worth while project. So if you desire a mechanical SEL CAL and WRU, this method will fill the bill. There are a number of model 28 baskets with stunt boxes available from most teleprinter shops such as A.D.M. (see ad this issue). The cost is minimal and I am sure that Doug, WA6 PMA will be most co-operative, if you will but write to him. You can use this system with any model teletype writer but it can be somewhat less expensively if you already have a model 28.

The electronic method is the more desirable method as it is a motionless system and will not be wasting electricity, except for the TU and the receiver. There is nothing running at any time until the proper code is exercised . Then your machine will go thru its' thing and do whatever is commanded or coded to do.

The best SEL CAL that we have found was in an older issue of '73 Mag' November 1972 page 20. This issue has a very explanitory concept. The board should still be obtainable from Walter Zalewski of 29307 Red Cedar Drive, Flat Rock, MI Zip 48134. I have forgotten the price of these but think it was about 12.00 dollars. It is nicely made and well worth the price. Also, provided with the boards are methods of construction and programming that are simple and just a matter of putting wires in the correct hole as explained. I have had mine in operation for nearly a year now and it has not given one false start nor been any trouble at all. The only difficulty that may arise is in one chip that Walt has never changed

continued next page

on his board layout. That one is a F1 which on his board layout shows a 7446 and is really a 7476. Other than that, if his directions are precisely followed you should have no problems at all.

A SASE TO Walt will bring you all of the details(address above).

There is one heck of a lot of satisfaction in making up one of these SEL CAL units, electrical or mechanical, and it is a real mystifier to any visitor to the shack on how it is all done. You don't need to tell them how simple it all really was!

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Seattle, Washington 98115

Working with HF RATT, I HAVE USED MANY DIFFERENT TONE PAIRS

Working with HF RATT, I have used many different tone pairs (even single tones in days past!) with my audio terminal units. Since nearly any pair of tones (properly spaced) will work, the only consideration is one of practicality. "Practicality" includes tone fit through audio filters in transmitter and receiver, channel filters with approximately the same Q factor, preservation of calibration of the receiver and transmitter, sensing, and the use of the same tone pair for HF, VHF, and landline use.

I recently started working VHF RATT and came up hard against the realization that, as opposed to HF, I had to give consideration to the exact audio tones involved: in addition to the shift. Whereas in HF, I can recover any tones I desire, in VHF, I recover exactly the same tones as the distant station used to modulate the transmitter.

This situation caused me to think about selection of tones and consideration of tone pairs that would give me the greatest advantage "practicality".

We have all had the problem of getting 2975 Hz. through the audio sections at the same level as 2125 Hz. To compensate for this problem, pairs 1275/2125 Hz. 1275/1445 Hz., or 1955/2125 Hz. are used commonly. Using a common mark tone reduces the total number of channel filters required when shifti from wide to narrow shift.

The matter of divergent Q factor is made worse with lower tones. To compensate for this problem, pairs 2125/2975 Hz. and 2125/2295 Hz are used commonly.

To this point, what has been said refers equally to HF or to VHF operation. The matter of equipment ca- tion applies only to hf using tones (audio) h SSB equipment since VHF USES AM or FM and channel frequency is not affected by the tones used.

The equipment calibration problem has been "solved" in many ways. The most heroic approach has been to change the crystal in a mixer in order to make the dial read correctly with the pair of tones selected. This approach has some complications. After changing the crystal, the calibrn is no good for SSB voice or CW operation.

Additionally, we amateurs define the HF teleprinter "channel" frequency by the frequency of the mark (higher RF frequency). It should be noted that the rest of the world (i.e.
but the ..
Amateur Radio Service) defines the HF teleprinter channel by the frequency midway between the transmitted mark and space frequencies.

An approach that will preserve existing calibration of equipment is to use tones centered around 2000 Hz. (1000 Hz. could be and has been used , but the filters would have divergent Q factors). Such tones are 2425/1575 Hz. and 2085/1915 Hz. By using upper band and 2085/1915 Hz. By using upper sideband , the channel is always 2000 Hz. above the dial reading and the sensing remains the same for both RF and AF signals (i.e. space is always low and mark is always high).

"Classic" sensing for RF signals is space low and mark high. Since the historical method was to recover tones. in LSB, the AF sensing is reversed from the RF sensing: resulting in audio mark low and space high. This reversal helps to explain why the beginning RATT'er often transmits upside down.

The use of tone pairs symetrical around 2000 Hz. has the advantages of fiting well through the audio bandpass of all equipment , resulting in filters with nearly the same Q factor, permitting retention of equipment calibration so that one can go from RATT to CW to SSB without losing dial calibration, and providing the same sensing for all conditions.

As a side issue, it should be noted that most SSB equipment generates CW signals by keying a 1000-Hz. oscillator thus providing the transmitted RF energy 1000 Hz above (or below) the dial reading. Thus, the concept of using specific audio tones to generate specific RF signals removed from the suppressed carrier (dial reading) is not new or revolutionary.

cont. page 17 col. 2

AUDIO DIGITAL PROBE

Design credit goes to: Larry Fort's article in March '77 Radio Electronics Magazine. We hope you enjoy building and using this nifty circuit.

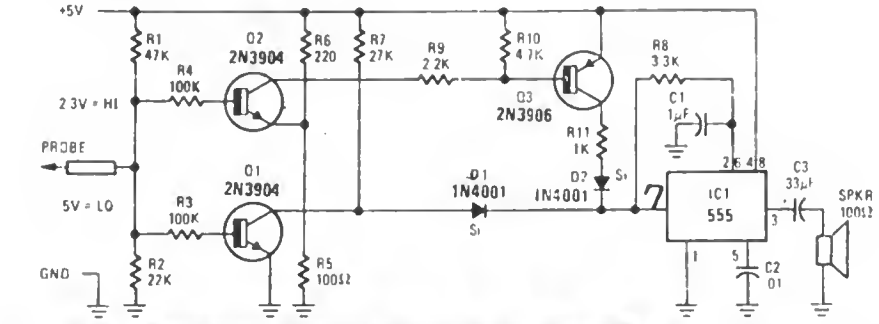
This PROBE uses audio high and low tones to indicate the status of the signal being tested.

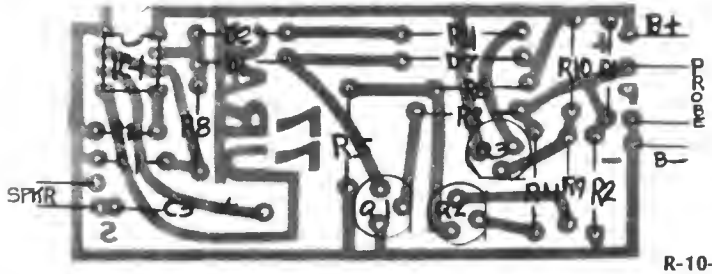
Now you can probe difficult TTL IC circuits quikly and tell if it is high, indicated by a high pitch tone; low, indicated by a low tone; or in-between by no tone. Alternating tones would indicate an oscillating circuit.

ASSEMBLY AND USE.

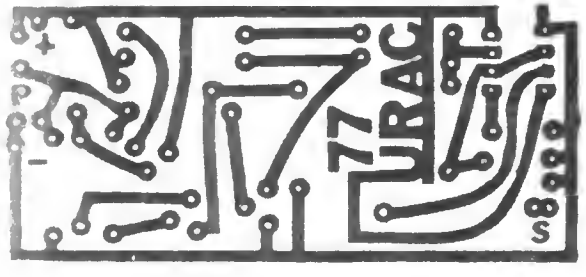
With all parts on hand assembly should take 1 hour. Follow parts layout. Be sure that Q1, Q2, Q3, D-1, D-2 and C-3 are mounted with the correct polarity. A high pitch tone will be heard if the tip is connected to a TTL high level above 2 volts, and a low pitch tone below .8 volts. No tone will be heard for levels between these two voltages.

Board Design:
K6AA - United Amateur Radio Club
San Pedro, California





PARTS SIDE



FOIL SIDE

PARTS LIST

R-1—47K
R-2—22K
R-3, R-4—100K
R-5—100 ohms
R-6—220 ohms
R-7—27K
R-8—3.3K
R-9—2.2K
R-10—4.7K
R-11—1K
C-1—0.1 μF
C-2—.01 μF
C-3—10 to 33 μF (electrolytic)
Q-1, Q-2—2N3904 (NPN)
Q-3—2N3906 (PNP)
D-1, D-2—1N4001
IC-1—555 timer
1½" speaker
probes and wire
All resistors are ¼-watt, 10%.

TIRED OF BUYING RIBBONS FOR YOUR MODEL 28??

Chuck Edwards, W6MNO

Model 15 inker kits can be purchased from many of the surplus houses such as Atlantic sales in New York City, Typetronics, Box 8873, Fort Lauderdale Florida, Doug Mathena at ADM Teletype Service in Escondido, California, and others. Prices will run approximately five dollars for a kit containing a brand new nylon ribbon, the inker itself, a spare ink roller, bottle of ink and a handfull of extra felts for the ink rollers. The ink furnished with the kit, in most cases however, should be thrown away as it dates back to WW II. It is very thick and will not flow properly. A supply of NCR Printers ink can normally be purchased at a stationary or typewriter store. If you cannot find the new ink then you can renew the ancient ink by mixing a small portion of ink squezzed out of the bottle (a teaspoon or so) with about a quarter of a teaspoon of teletype oil or any thin non-detergent oil.

The drawings used as part of this article are more or less self-explanitory. The inker as it was designed, for the Model 15 is shown in figure "A". Figure "B" shows the modification necessary to permit the application to a Model 28. There are other ways of modifing this kit to fit a 28 but most will wobble and eventually jam the ribbon or spool. This modification does away with these disadvantages by being mounted, solidly under the ribbon mechanism rather than loosely placed under the ribbon spool. The dotted lines show where the metal is to be removed and the solid line is the part that is wanted. A hacksaw or a pair of snips will do the job. The hacksaw, however, seemed to do a better job as it did not bend and twist the part I wanted to save. Dimentions are not critical except, care must be taken to leave enough metal at the place where the hole is to be drilled. This hole should be approximately one-eighth of an inch or less.

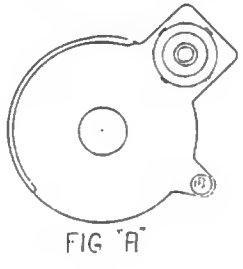


FIG "A"

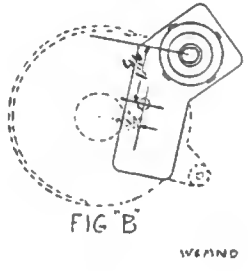


FIG "B"

W6MNO

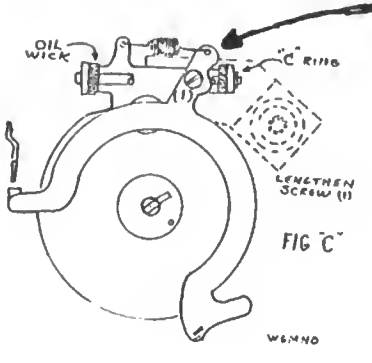


FIG "C"

W6MNO

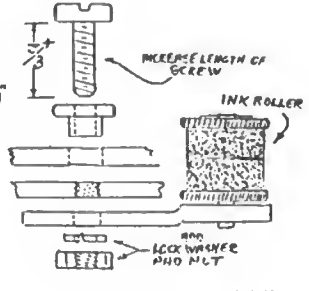


FIG "D"

W6MNO

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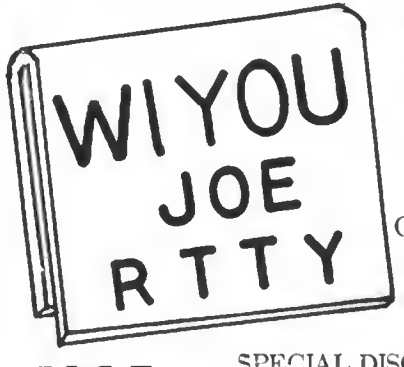
(314) 576-5489



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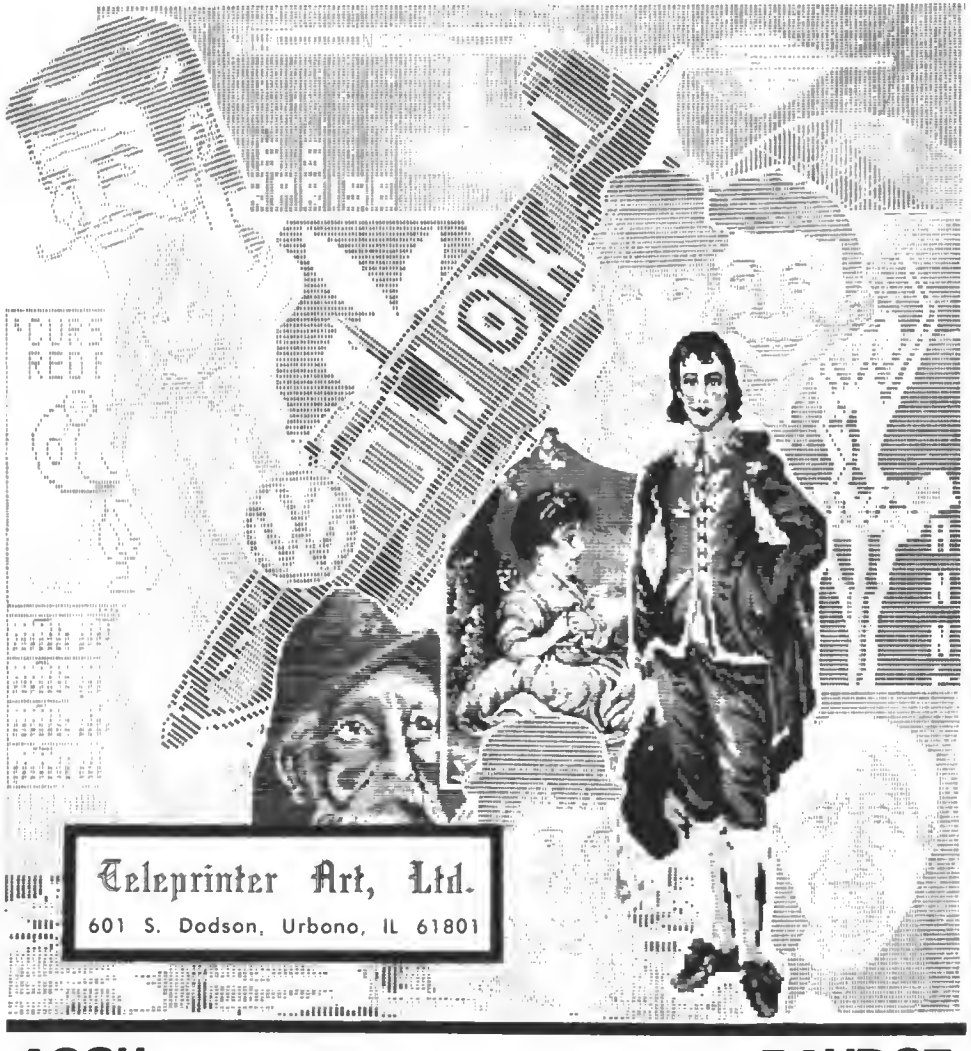

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WA6PMA DOUG

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The ST-5000 from HAL

The HAL ST-5000 sets the pace for an economical demodulator/keyer for radio-teletype (RTTY). All the features you need for reception and transmission of HF and VHF RTTY are here.

The demodulator features a hard-limiting front end, active filter discriminator, and active detector circuitry for wide dynamic range. Autostart and motor control circuitry make for easy VHF and HF autostart operation.

Convenient front panel switches are provided for 850 and 170 Hz shift, normal or reverse sense, autostart on/off, print - line or local, and power on/off. 425 Hz press transmissions may also be copied with the ST-5000. High voltage 60 ma. loop output as well as low level RS-232 compatible output are provided by the demodulator.

The audio keyer section of the ST-5000 generates stable, phase-coherent audio tones. Transmission is a simple matter of applying these tones to your HF SSB or VHF FM transmitter.

The ST-5000 is housed in an attractive blue and beige cabinet and is backed by the HAL Communications one year warranty.

For complete specs on the HAL ST-5000, write or call HAL today.

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2.	CT1EQ	27,143,360
3.	9H1EL	13,386,687
4.	I5WT	9,090,900
5.	SM6GVA	4,677,096
6.	W1MX	3,735,648
7.	K4YZV	3,696,000
8.	SM6ASD	3,618,585
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10.	K6WZ	2,820,475
11.	I2OLW	2,326,176
12.	PAØSCH	2,243,436
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20.	VK3KF	647,361
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22.	LA7AJ	350,523
23.	W7BCT	281,010
24.	HA5KBM	224,840
25.	OZ6SM	222,640
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27.	WAØTLT	160,550
28.	PAØCWI	158,080
29.	W2DUS	133,650
30.	VE3BIJ	104,052
31.	OZ4DZ	94,696
32.	EA3AHM	77,220
33.	F6BIQ	70,656
34.	OK2PAD	69,264
35.	LA3YU	62,550
36.	DJ9IR	53,120
37.	K2RYI	42,075
38.	SM6CAL	30,360
39.	K8KAG	24,444
40.	DK1AQ	12,276
41.	JA1FFX	7,760
42.	OK1MP	5,670
43.	DL1OW	5,148
44.	LA2IJ	4,851
45.	PAØWDW	2,592
46.	W8TCO	2,142
47.	DKØTA	1,225
48.	SM6GDL	9
49.	I6SNP	3

CHECK LOG SM5EIT

SWL

1.	OK2-5350	4,690,224	3.	I3-13018	2,454,268
2.	I3-14258	4,234,944	4.	I1-56889	139,840

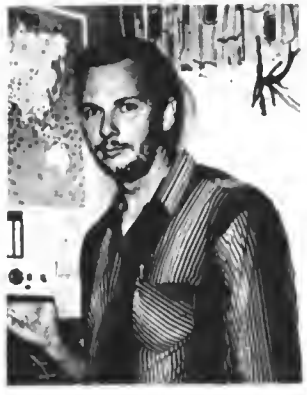
AWARDS

1.	I8AA	Plaque "SSB & RTTY club"
2.	CT1EQ	Plaque Associazione radiot Italiana
3.	9H1EL	12 months subscription to QST or Ham Radio
4.	I5WT	12 months subscription to QST or Ham Radio
5.	SM6GVA	12 months subscription to QST or Ham Radio
6.	W1MX	12 months subscription to RTTY Journal
7.	K4YZV	12 months subscription to RTTY Journal
8.	SM6ASD	12 months subscription to RTTY Journal
9.	I3FUE	12 months subscription to Radio Rivista
10.	K6WZ	12 months subscription to Radio Rivista

1.	OK2-5350	Plaque "SSB & RTTY club"

COUNTRIES REPORTED

AC3,CT1,DU,DK,DM,EA3,F,FG7,G,G1,GM,HA,HB,HI,I,IS,JA,YJ,KH6,LA,LX,
OA,OK,OZ,OH,ON,OE,PA,PY,SM,W,UA,UB,VK,VS6,VE,XE,YV,YK,ZS,ZL,ZP,9H.



"SIG" - OHØNI

- Aland Island

Mariehamn 22:nd of June 1977

We have got your RTTY-journal No. 4 April 1977 and we will thank you for your big interest to our housebands and fathers -OHØNI Sigges- activity.Unfortenately we have to communicate that the RTTY-station on Åland Island is silent now. Sigge and hes son Björn OHØ-920 drowned the 28:th of May when they were sailing to their summer-QTH. Now we really miss the cosy noise every sunday morning. We will thank all RTTY-amateurs in USA for all happyness they gave him while he still was alive.

Irja-Lisa Mansnerus
CATHARINA

Irja-Lisa,Anita and Catharina Mansnerus

Catta Mansnerus

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YOU NEED INFORMATION ON COMMERCIAL RTTY STATIONS? News Agencies, Telex, Weather . . . on shortwave? I have up-to-date frequency, callsign, schedule, code lists. Write for details. Joerg Klingenfuss, Goethestrasse 14, D-7400 Tuebingen 1, West Germany.

MODEL 32 ASR MACHINES FOR SALE. Presently in Telex Service. Available after June 1. Machines located in Springfield, Massachusetts; Knoxville, Tennessee; Baton Rouge, Louisiana; Dyersburg, Tennessee; Grand Rapids, Michigan; Centralia, Illinois; Ardmore, Oklahoma; Salt Lake City, Utah; and Los Angeles, California. You pick up. For more information contact Conrad Jahries, WB7DHJ, (800) 453-5300 and in Utah (801) 484-8631, Interstate Contract Carrier, P.O. Box 748, Salt Lake City, Utah 84110.

ATTENTION FACIMILE OPERATORS: a list with more than 200 frequencies of facsimile weather stations transmitting on SW is airmailed to you for $3.00 or 10 IRC. It includes frequecy, callsign, name, drum speed and cooperation index of each station. Write to Joerg Klingenfuss, Goethestrasse 14, D-7400 Tuebingen 1, West Germany.

QSL's, CATALOG 30 CENTS. TELETYPE PAPER single sheet rolls 12, 4½ inch rolls per case white, $25.00 per case plus shipping (case wt. 36 lbs.). N & S Print, P.O. Box 11184, Phoenix, Ariz. 85061.

NEWS—NEWS—NEWS—Amateur Radio's Newspaper, "Worldradio", Trial subscription — Two issues for one dollar. "Worldradio" 2509-F Donner Way, Sacramento, Calif. 95818

TELETYPEWRITER PARTS: Gears, manuals, tools, paper, tape, Mod. kits, Gear shifts, ribbons, cranks, keytops, pallets, toroids. SASE for list. Typetronics, Box 8873, Ft. Lauderdale, FL. 33310. Buy unused parts, late machines.

KIM OWNERS - Add 4K to your KIM -- complete instructions to add a commercial low cost (under $90) 4K memory board to your KIM-1. No hardware additions (except connectors) or board cutting required. Price - $10.00. The Bit Stop, P.O. Box 973J, Mobile, AL 36601.

MODEL 28 CONSOLES, RO's – $135, KSR's – $165, ASR's – $325, with modems add $50. Loads of 15's and 19's. Goodman, 5454 South Shore Drive, Chicago, IL 60615 (312-752-1000). Phone anytime.

SALE: BLACK NYLON RIBBONS for all your Teletype machines $6.75 a dozen, Red and Black Nylon ribbons dual spool $1.50 each or $12.00 dozen, Roll paper white 5" diameter $2.50 roll or case of 12 rolls $19.50. Perforator Tape 11/16 inch wide by eight inch diameter. Box of 10 rolls $4.90 or case of 40 rolls $15.90. Black Nylon ribbons for Kleinschmidt $1.50 each or dozen for $10.75. Tuning Forks 96.19 VPS or 120 VPS $2.50 each. Distortion test set type TDA-2 with Scope $39.00. Also available Model 14, 15, 19, 28, 32, 33 machines. Send us a list of your Teletype requirements. All prices FOB Brooklyn, N.Y., Atlantic Surplus Sales Co., 3730 Nautilus Ave., Brooklyn, N.Y. 11224. Tel: (212) 372-0349.

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35 KSR for computer hobbyist in excellent working condition $700.00 ea. friction or sprocket, A.D.M. COMMUNICATIONS INC., 1322 Industrial Ave., Escondido, Ca. 92025. 714-747-0374.

TELETYPE MANUALS - Model 28ASR, 3-volume set, $24.50 plus $.75 postage. Thousands of other manuals available for military surplus receivers, xmtrs, teletype, radar, test sets. Send $.50 (coin) for large 22-page list. S. Consalvo, W3IHD, 7218 Roanne Drive, Washington, DC 20021.

MINI-MANUALS, $3.95 each postpaid - M15/19 Wiring Hints, Diagrams and schematics. CV89/URA8 FSK Converter data. TDA2 Stelma Distortion Analyzer, AN/SGC-1 AFSK Converter, conversion details, etc. Teletype Gear Guide. Schematic for CV57 FSK TU - $1.20 postpaid. Technical Manuals, Teletype Equipment and Parts, Surplus Electronics. SASE for lists. Jim Cooper, W2BVE, POB 73, Paramus, NJ 07652.

FOR SALE: Complete HAL RATT station including DKS-2010 keyboard, ST-6 FSK with 64 buffer memory, RVD-1005 converter, RVD-2110 TV-monitor, 2" oscilloscope with P.S. Instruction books, mint condition. Cost $1700.00. Sell for $1000.00 FOB Santa Barbara, California. Certified check, bank draft or M.O. WB6DBD. Phone (805) 687-6846. See Call Book.

DT-600 BOARD completely tuned and wired except for output transistor, never tested $32.00. W3KET, M. Leibowitz, 25 Holly Hill RD., Wilmington, DE 19809.

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TD TAPE teletypewriter. Carton of 10 rolls width 11/16" 2" core, oiled, color yellow $3.00. Add UPS or postage charges. WT. app. 12 lbs. Harmon, 5628 - 10th Avenue, South- Birmingham, AL 35222. (205) 592-0835.

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PRINTED CIRCUIT BOARD drill bits! You can now get carbide printed circuit board drill bits for a reasonable price. 1/8" shank, approximately 1" long. Two sizes available; .047" (approx. #56 drill), and .030" (approx # 68-69 drill). $1.25 each includes shipping. More sizes available soon. Inquire stating needs. Midnight engineering Group, 217 North Cedar Street, Galesburg, IL 61401.

TD TAPE, Carton of 10 rolls width 7/8" 2" core, color yellow, $5.00. Add UPS or postage charges. WT. 13 lbs. Harmon, 5628 - 10th AvenueSouth, Birmingham, AL 35222.

P2102 MICROPROCESSOR 1KX1 memory chips tested good. $1.00 each. Joe Young W6RLL, 16808 Goodvale Road, Canyon Country, CA 91351. (805) 251-2135.

DX NEWS CONTINUED

coverer of electricity, Alessandro Volta and as soon as possible we shall forward the rules. G.Vulpetti,I2VIT, SSB & RTTY Club secretary.

TONE FREQUENCIES:

cont. from page 11

I wish that I could take the credit for the development and wide use of the pairs of tones centered around 2000 Hz. but I can't. I found the pairs used on commercial equipment and a little study revealed the advantages for universal use.

I recommend the study and consideration of these tones. There is the disadvantage of not being able to use a common mark channel filter and thus to save the cost of additional filters when using wide and narrow shift. However, the advantages are great and permit the use of the same terminal (modem) unit with HF, VHF, and landline.

DT-600, DT-500, DD350, DI-70 wired and tested units available on high quality commercial boards from the author of the articles in February and March 'Ham Radio'. Only wired and tested units available. For information send SASE to: Robert Clark, 930 Chestwood Avenue, Tallahassee, FL 32303

PROMS- Pre-programmed 74S288N... (tri-state outputs) are available for the VE3CTP ASCII-BAUDOT/BAUDOT—— ASCII converter (Oct 76 & Jan 77 RTTY JOURNAL) . $3.25 each postpaid, including airmail overseas (set of 4 used). See PROM article this issue. UT-4 components available as before. See prior ads. Peter Bertelli,W6KS, 5262 Yost Place, San Diego, CA 92109.(714) 274-7060.

SELL: HAL ST5A with auto start in Drake cabinet, $55; R390 A, very good condition, $350.00; URM 25D signal generator, $135.00; TV-10/v tube tester, $85; HP 120B scope, $65; OS-8 scope, $30;HP400B VTVM, $25; microwave modules 144mhz to 432 mhz transmitter, new in sealed carton, List $319.95,sell $259.95; URM-32A freq meter,$24.95: Drake R4B, mint, $310.00; Steve KH6 IHP, 94-1084 LumiSt.,Waipahu HI 96797

PRINTED CIRCUIT BOARDS: RTTY SELCAL with TTL logic, (73 Magazine, November 72) $12.00. ST-5A-W/PS (2 boards) $6.25. AK-1, $4.25; CW ID'er (Feb 73, 73 Magazine) $4.75. Logic probe (Dec. 74, 73 Magazine) $1.00. Autostart RTTY encoder and decoder (Jan. 67, 73 Magazine) $11.00. Synthesizer - 75-S Collins Rec. (Dec. 75, Ham Radio) 2 boards $12.50. Instructions and parts list included. S.J. Zalewski, 29307 Red Cedar Drive, Flat Rock, MI 48134. (313) 782-9316.

PRESCALER KITS good to 300 MHZ complete with all componets. Has post-amp for better sensitivity board measures 1-1/2 x 2 inches will fit inside most counters.

Kit $14.95 assembeled $21.95..... Order %RTTY Journal P.O.Box RY Cardiff by the Sea, Calif. 92007.

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FSC-250 two units for sale 170/850 shift AFSK TK-100 4 units for sale Switching panels and cables available Write Frank Iversen WA6ZCQ 1312 Micheltorena - Los Angeles, CA 90026 for details.

REPAIRS ON T/U's and Kleinschmidt machines - Will build T/U's to your specs - Commercial service and bench HF and VHF repair since 1972. Nealtronics, 2254 West Market St., Pottsville, PA. 17901.717-622-2297.

ELECTROCOM SERIES 400 FREQUENCY SHIFT CONVEROTS,are now available to the amateur
Outstanding performance, high reliability and quality construction, for which Electrocom equipment has been known for more than 17 years, is maintained by conservative design and quality componets throughout. The Model 400 contains continuously variable shift which is adjustable by a 10 turn front panel control. Shift is accurately displayed by an in-line 3 digit readout. A range switch selects high or low tone combinations allowing use on both SSB and AFSK systems. The Model 402 contains individual Mark and Space frequecy controls. Matched filters, band rate selection, and precision linear detectors provide optimum demodulation. Input frequecies over the range of 1000 to 3200 Hz. are accepted. Other features include autostart, mark-hold,antispace, waveform symmetry corrections, solid state motor switching and adjustable bias correction circuitry. The loop supply is variable from 20 thru 60 mils. and maintains constant current over a wide range of loop resistance and line voltage. The 2 inch CRT tuning indicator/monitor contains automatic ., intensity control and blanking. Direct factory introductory price range $690.00. FOR complete details and specifications write or call Electrocom Industries, 1105 N. Ironwood Drive, South Bend, Indiana 46615 219-232-2743..

HAL COMMUNICATIONS CORP. announces the MCEM-8080 microcomputer. The MCEM-8080 is a complete operating system on a single PC board, including serial I/O at RS-232C levels or 20-60 ma current loop, 3 parallel I/O ports, 1024 bytes of RAM, 1024 bytes of ROM containing the system monitor program, and switches and indicators to manually control all bus and control lines. The powerful 8080A CPU and its family of chips are used. The system monitor allows the use of either Baudot or ASCII terminals, and enables the user to load hex files, dump or display memory, insert data in memory and transfer program control to a specific location. Whether you are a RTTY operator turned computer hobbyist, or a computer hobbyist turning to RTTY for a communications link, the MCEM-8080 should be your choice. Write today for full details. HAL Communications Corp., Box 365RJ, Urbana, Ill. 61801. Phone 217-367-7373.

HAL COMMUNICATIONS CORP. announces the ST-5000 Demodulator/Keyer. Housed in an attractive blue/beige cabinet, the ST-5000 provides excellent performance at moderate price for HF and VHF-FM operation. Active discriminator filters and detectors assure wide dynamic range. Autostart operation, switchable wide narrow shift, and switchable normal/reverse are some of the features provided. The audio keyer generates stable, phase coherent audio tones for each shift. The ST-5000 has a self contained loop supply, and also generates RS-232 data levels for use with HAL electronic TTY video display equipment. $275.00 postpaid. Write or call for further information, HAL Communications Corp., P.O. Box 365, Urbana, Illinois 61801, 217-367-7373.

HAL COMMUNICATIONS CORP. announces the DS - 3000 and DS - 4000 series of KSR Video Display Terminals for Baudot and/or ASCII code. Offering error correction capability, multi-speed operation, and 16 lines of 72 characters per line, these terminals employ the 8080 microprocessor in what we believe is the first microprocessor based product offered to the amateur radio communications market. Request data sheet for full information. HAL COMMUNICATIONS CORP., Box 365RJ, Urbana, IL 61801. Phone 217-367-7373.

HAL COMMUNICATIONS CORP: Headquarters for electronic RTTY equipment. In demodulators, choose from the incomparable ST-6 or, for a low cost beginning in RTTY, the ST-5. Tailor either to your requirements by selecting the 425 Hz press discriminator, the XTK-100 or AK-1 AFSK oscillators and the ST-5AS autostart for the ST-5. Full details available in our current catalog. Compare before you buy. Bank Americard and Master Charge plans available. HAL COMMUNICATIONS CORP., Box 365RJ, Urbana, Illinois 61801. Phone 217-367-7373.

UT-4 COMPONENTS available as before - see March and April ads. No known source of PC boards at this time. Peter Bertelli W6KS, 5262 Yost Place, San Diego, CA 92109 714-274-7060.

SPECIFICATION SHEETS for Teletype Corp. modification kits and equipment installation. Generally $1.95 to $2.95 each depending on size. Order by stating exact modification kit number, or equipment model number and function. Send SASE for flyer sheets--TTY,FAX, TM's, electronics. Jim Cooper,W2JC, PO Box 73, Paramus, NJ 07652.

MODEL 28ASR MkIII, like new with manuals, $550. Collins 55G-1 preselector, new and unused, $350. Ron Ott, (W6XY), 528 Bonita Avenue, Pleasanton, California 94566.

FOR SALE: Complete set of reprints of the RTTY JOURNAL. Volume #1 to date. These are in book form same as originals. Brand new mint condition, ideal for the person who wants to know all about RTTY. Price complete including shipping, $125.00. Ralph H. Wilson, 4011 Clearview Drive, Cedar Falls, IA, 50613. WBØESF.

MODEL 28 compact stand alone tape distributor, sync motor, $90.00. Model 28 stand alone typing reperf with gear shift 60-75-100, receive only, $95.00. Collins R-390 receiver, $250.00. All in good shape. Will ship. W7KPA, 1240 West San Lucas Drive, Tucson, Ariz. 85704.

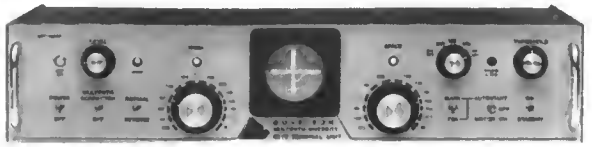
DOVETRON TSR-200 teleprinter speed converter-signal regenerator is a 5" by 5" card designed as the digital heart of the MPC-1000CR terminal unit. May be simply interfaced to other tus. Consists of programmable UART regenerator, dual crystal controlled clock and a CMOS bilateral steering section. Power requirements: 5/15 volts at 20 mils. Price $99.50 postpaid. Add $15.00 for front panel BCD speed switch and cable. DOVETRON, P.O. Box 267, South Pasadena, CA. 91030. 213-682-3705.

DOVETRON TBA-1000 BAUDOT-ASCII code translator permits an ASCII teleprinter (model 33,35,etc.) and the Heath H-9 video terminal to be used directly with any terminal unit on Baudot RTTY circuits. The TBA-1000 may also be used to interface a 5-level Baudot teleprinter directly to ASCII circuits, such as a microprocessor. When using an ASCII video terminal, hard-copy may be had simultaneously on a Baudot printer. In addition to signal regeneration, speed conversion and 192 characters of FIFO memory, direct keyboard control of the companion terminal unit and transmitter-receiver is also provided. Price: $245.00 FOB. Delivery: November 1977. Complete specifications are available on request. DOVETRON, P.O. Box 267, 627 Fremont Avenue, South Pasadena, CA 91030. 213-682-3705.

DOVETRON STATION IDENTIFIER TID-100 may be programmed in Morse CW, Baudot or ASCII codes. Output speed is variable from 5 to 20 WPM (CW) and 60 to 100 WPM (Baudot/ASCII). Two LEDS indicate CLOCK RUNNING and CODED OUTPUT for easy visual verification of programmed code. Dual output:One drives FSK/AFSK line and the other may be used to drive front panel indicator. Mounts inside of Dovetron MPC Series terminal units. Requires 1 Ma at 12 volts. Price:$39.95 postpaid. DOVETRON, P.O. Box 267, South Pasadena, CA 91030. 213-682-3705.

HAL DKB 2010 DUAL MODE keyboard with 128 character buffer memory. Excellent condition. $350.00. Wayne, W8 GXB,(616) 772-9236, 263 South Division, Zeeland, MI 49464.

DOVETRON

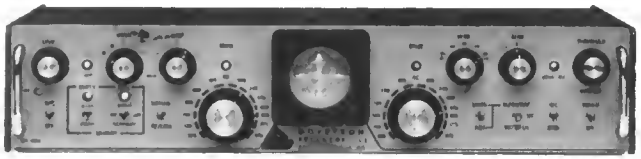


MPC-1000C
Multipath-Diversity
Amateur Net: $495.00

The MPC-1000C features MULTIPATH CORRECTION, IN-BAND DIVERSITY (single channel copy during deep selective fades) Operation and a PHASE-CONTINUOUS AFSK TONE KEYER. The Mark and Space channels are CONTINUOUSLY tuneable from 1200 to 3100 Hz. The Internal RY GENERATOR and DUAL-MODE AUTOSTART (FSK or MARK) are standard, as are rear panel provisions for SIGNAL REGENERATION and SPEED CONVERSION peripherals.

MPC-1000CR
Signal Regeneration & Up-Down Speed Conversion
Amateur Net: $595.00

The MPC-1000CR combines all the features of the MPC-1000C with the TSR-200 SPEED CONVERTER-REGENERATOR. A front panel SIGNAL SPEED switch provides electronic "gear-shifting" between 60, 66, 75 and 100 WPM speeds. All incoming and outgoing signals are regenerated by a CMOS UART and a crystal-controlled DUAL-CLOCK to less than 0.5% bias distortion, providing an extremely low error-rate on weak and badly distorted signals.



MPC-1000R
Dual-Uart Regeneration, 200 Character Fifo Memory & Word Correction.
Amateur Net: $820.00

The MPC-1000R combines the features of the MPC-1000CR with the TSR-500 SPEED CONVERTER-REGENERATOR and offers 200 characters of FIFO MEMORY, a DUAL-UART REGENERATOR that also provides local copy during all PRELOAD-RECIRCULATE functions, a WORD CORRECTION circuit that permits an incorrect word to be erased from memory by depressing the local keyboard's BLANK key, VARIABLE CHARACTER RATE and automatic BLANK/LTRS DIDDLE. Character OVERRUN during down-speed conversion is prevented by an automatic CHARACTER RATE OVER-RIDE and TEE DEE INHIBIT circuit. Three preset AFSK TONE/SHIFT combinations are selectable from the front panel.

The MPC-1000R (80 characters of memory), MPC-1000CA (Tri-tone AFSK), MPC-1000CRA (Tri-tone Regenerator) and MPC-1000CS (Crypto-Scrambler) are also available.

Your QSL will bring complete specifications, or call: 213-682-3705.

DOVETRON

627 Fremont Ave.
(P. O. Box 267)
South Pasadena, Ca. 91030